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The combination of imaginary and real worlds

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The combination of imaginary and real worlds

by

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Report

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Abstract

The combination of the imaginary and real world

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The University of Texas at Austin, 2011

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My work explores methods of creating illusions that make the imaginary and the real worlds appear to co-exist. More specifically, my animations look at ways of connecting the real and fantastical by using "low tech" materials.

This report discusses existing work that combines animation with video-installation, live-performance, and advertisements; analyzes my research trajectory, explains my methodology for producing new hybrid work in animation; and then describes my projects. Each project is derived from a matrix I developed that forces integrations between two sets of criteria: (1) physical world action, objects and space, and (2) computer-generated images, representational images in an imaginary state and objects in physical space in an imaginary state.

Table of Contents

Introduction....1

Subject....4

Methodology....7

My projects....12

- Project 6....12
- Project 10....16
- Project 11....20
- Project 14....21
- Exhibition....24

Conclusion....25

Reference....26

Introduction

Since its inception, animation has transformed the real world by stimulating our imagination. Things we dream, which we cannot realize in the real world can be created and can live in the world of animation. In the early days of film, animation existed only as projections on screens. But increasingly with the support of new techniques and new methods, it has become possible for animation to respond to our movements and transform the built environment. As its applications extend far beyond film to the fields of advertisement, video-installation, live performance and group activities, animation incorporates more media, materials and techniques which, in turn, result in the blurring of animation and the real world.

Some recent projects provide popular examples of this blurring of real and unreal. *555 Kubik*[1] is an example that applies animation in video-installation. It employs 3D video mapping projections, allowing the animation to overlay on the building. This creates an illusion that the building is animated—it describes its construction and spatiality (see image below). The video mapping projections fuse the animation with the concrete edifice, successfully building the imagination in the real space.

[1] *555 KUBIK*, 2009, created by urbanscreen.com, realized with mxwendler.net

Body Paint[2] combines animation with live performance. In this project, dancers can paint on a virtual canvas with their body. Their gestures and dance movements can be interpreted into evolving compositions. So dancers perform based on the animation triggered by their previous gesture (see the images below). This project connects physical action and the virtual world in real-time.


Ident Promo[3] applies animation in advertisements. It uses a flipbook to create animation overlaid on real space. As the pages turn, the car in the animation gradually becomes a black roller skate (see the image below) – connecting illusions and concrete objects in a real world setting.



My research focuses on exploring new methods that make animation and the real world appear coexistent, (like *Ident Promo*), rather than methods that allow animation to exist in real space, (like *555 KUBIK* and *Body Paint*).

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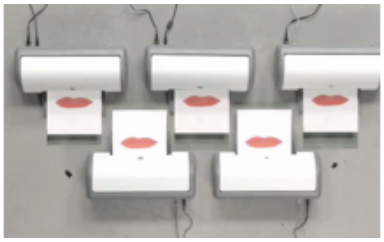
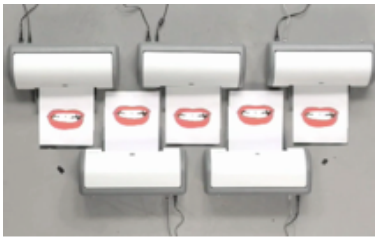
[2] *Body Paint*, 2009, by Mehmet Akten
[3] *Ident Promo*, 2009, by Luca Piccirilli, Ad for Cult TV

By incorporating physical objects or real world contexts, animation has the potential to become increasingly imaginative. Like magic shows, we know they are fake, but they remain convincing. We subconsciously believe the performance and the objects in physical space are real, so if the illusion can exist in and interact with real space, it becomes more magical than a fantasy film. At the same time the real world is transformed toward the worlds of creativity and fantasy.

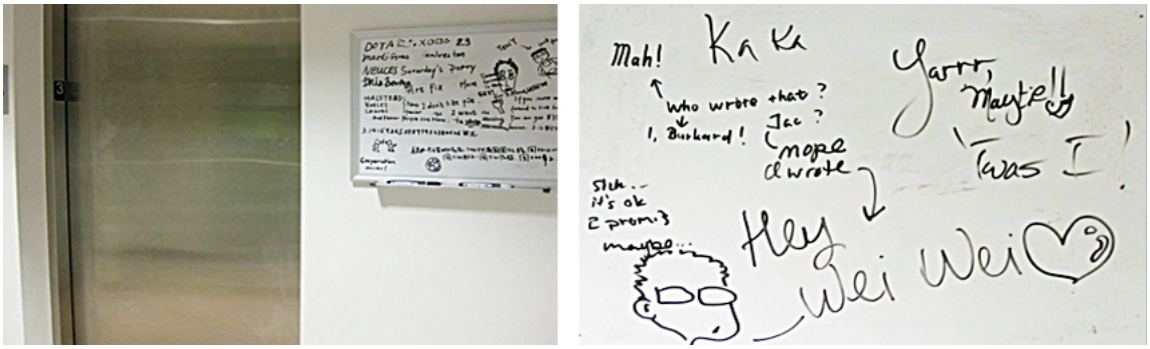
Combining animation with various real world materials/media/techniques can spark new ideas and methods for animation. Take *HP – invent* [4] (an advertisement for HP printer) as an example. By experimenting with printers, designers discover a new method to create animation: the consistent and reliable printouts from printers are speeded up until they are animated (see the images below.)

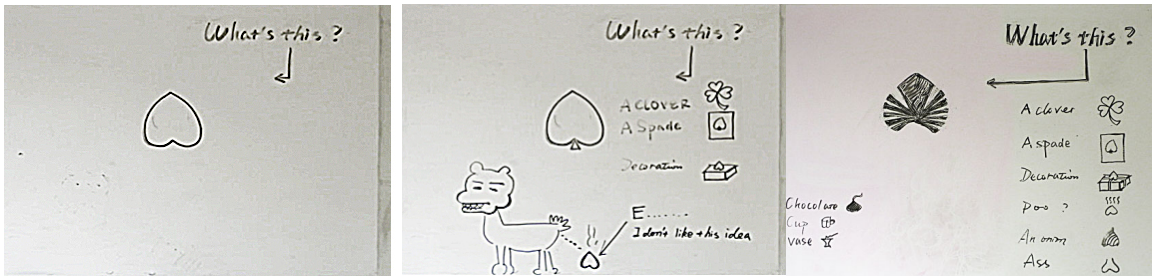

[4] *HP – invent*, 2009, by Matt Robinson and Tom Wrigglesworth

Subject

My initial research topic was not on the combination of real and imaginary worlds. Two years ago, I read *Pause & Effect* by Mark Stephen Meadows[5], which inspired me to explore the interaction between the people and the imaginary world. Based on this topic, I designed a project where people could interact with the image/text on a whiteboard. The whiteboard was placed in a public area of my co-op apartment building. Residents were encouraged to draw/write on it, or to communicate with others through messages or images.



I was unsatisfied with people just painting or writing on the whiteboard. I needed to better control the evolution of the "whiteboard story." I began to draw images and write questions to lead the conversation. As the example shows below, I asked "what's this?" and got various answers including: a clover, a spade, feces, an onion.



[5] *Pause & Effect* by Mark Stephen Meadows. New Riders, 2002, ISBN 0-7357-1171-2

Until the day I saw somebody just doodling on the board, I had not realized where my interest actually lay—I realized that I prefer the deeper level of narrative rather than the higher level of participation. I found that if I placed too much emphasis on people's participation in this project, the actual narrative was sacrificed for the interest of engaging experience. Therefore, I decided to abandon the people-participation, and concentrate on the combination of imaginary and real worlds.

Following this new direction, I turned the whiteboard-group-activity into a stop-motion animation, in which the images painted on the whiteboard reacted to the action of the hand. As the example shows below, when the finger touches the cloud image, the cloud begins to rain and wash away the ink. The action of the hand and the animation appear to be connected in this project.

The whiteboard project was an important turning point in my research trajectory. After this project, my research objective became to explore new methods of creating animation that combined the imaginary world with the real world.

Most of my projects used low-tech methods. In high-tech-mode, the methods connecting two worlds are usually straightforward. There is not much information that needs to be filled in by audience. For example, *555 KUBIK* employs video-mapping projection to make the animation and the building appear combined. The low-tech-mode

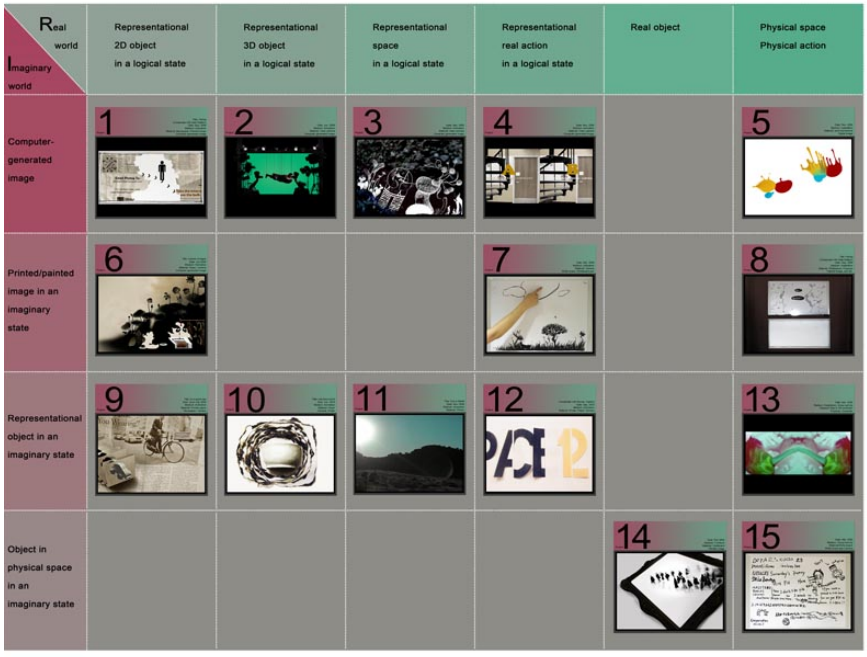
is relatively participatory because it requires the audience to bridge the two worlds with their imagination. Take one scene of my animation *Falling*[6] as example. (See below.) The black digital figure is being transmitted. Merged with the sentence of the newspaper "Email Photo To," we get an idea that the newspaper is emailing the black figure. So in this low-tech project, the audience's imagination is required to form ideas, and connect the real newspaper to the digital figure, which provides audience the fun of investigation and participation.

[6] My animation "Falling," 2009, collaboration with Dale Wallain

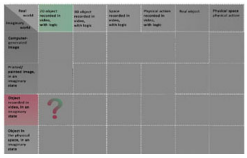
Methodology

The integration of imaginary and real worlds is a broad research topic. The two worlds are too abstract to simply define, so, rather than define them, I developed two sets of criteria that represent both worlds respectively in order to specify their parameters. I categorized the real world with the following criteria: real objects, physical action, physical space, and represented 2D and 3D objects in a logical state (for example outlines of falling rocks are subject to the effects of gravity). I used a computer-generated image and a painted image in an imaginary state to represent the imaginary world. To integrate both worlds, both sets of criteria could be combined.

The diagram below visualizes the combination. The red Y-axis represents the imaginary world, while the green X-axis represents the real world. The 15 projects shown in the diagram are the result of combining criteria on each axis. Since my research centers on this diagram and all my projects derive from it, the diagram can be considered the "matrix" of my project.



I selected Project 9 as an example to explain my methodology.

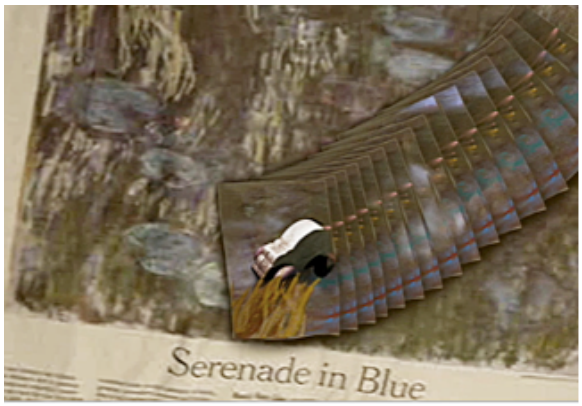


First, I chose a task from the matrix that is to combine the criteria "Representational 2D object in a logical state" with criteria "Representational 2D object in an imaginary state."

Experiments

I began by selecting material that met the criteria. I decided upon a video-recorded newspaper to represent the criteria "Representational 2D object in a logical state." The sequential printed paper represents the criteria "Representational 2D object in an imaginary state." By quickly displaying each piece of printed paper laid in sequence, an illusion is created.

I sought methods of combining the newspaper with the illusion created by the pieces of printed-paper. One example is displayed below. The image of the newspaper shows a picture of a pond. The sequential pieces of printed paper laid on the newspaper create the illusion of a 3D pond set in motion. Through the use of overlay, the newspaper and the illusion are combined.



Final Result

After experimenting, I developed the result into a three-minute animation— a printed car traveling across the surface of a newspaper. In the process of creating this animation, I also discovered some methods for combining the real newspaper with the illusive space created by the printed paper. The details follow.

Method 1: Overlaying

The image of the newspaper shows a reflection in the water. The pieces of printed paper laid on the newspaper create an illusive reflection. The quick sequential display of the pieces of paper create the illusion of the car moving beside the water. Therefore, by overlaying the newspaper image and the illusive moving reflection are combined.

Method 2: Transforming

The image on the newspaper is of a pond of water lilies. The printed paper displays the illusion that a piece of paper is soaking in water. As it transforms, the small piece of paper is connected to the image of the newspaper.

Method 3: Juxtaposition

When related objects are juxtaposed, our imagination is able to transform them into a single idea.

As the example shows below, the image of the newspaper shows a picture of a butterfly. The pieces of printed paper display illusive flying butterflies. The two juxtaposed pieces convey the idea that the butterfly image in the newspaper sends butterflies into the car with some of the butterflies becoming the pattern on the car.

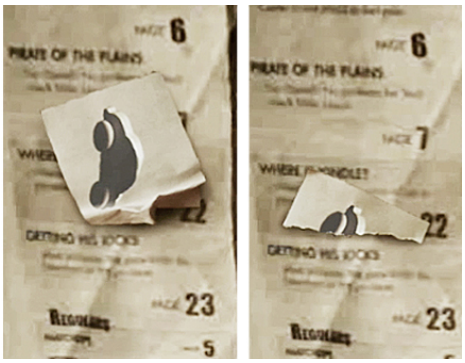
Method 4: Sound

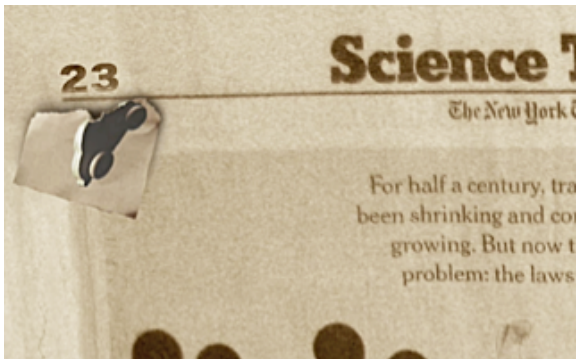
In this example, the sound of metal hitting the plate and the image of a knife shown in the newspaper leads you to believe that the image of a mushroom was cut by the knife. The sound helps the newspaper image and animation coalesce.

Method 5: Imagination

In this example, a picture of a car is crinkled and torn in its attempt to assimilate into the newspaper. Then it disappears into the number "23" in the index. We make various assumptions about where it is now located until we see the car image reappear on page "23" of the newspaper.

Our imagination helps us understand that the car is transferred from the index to page 23 inside the newspaper. The imagination bridges the gap between the image of newspaper and the illusory action of the car picture.





My projects

Here I list some of my projects to show how they were developed by combining criteria from the matrix and how they integrate imaginary and real worlds.

Project 6 represents the combination of the criteria “Representational 2D object in a logical state” and “Painted in an imaginary state.” I chose a video-recorded piece of paper to represent the criterion “Representational 2D object in a logical state.” And since the painted image can be animated, it represents the criterion “Painted image in an imaginary state.”

I looked for a way to combine the paper and the illusion created by the painted image. I discovered two methods, which I applied to my animation.

Method 1

The image could be painted on paper, or it also could be animated and the paper serve as illusory 3-dimensional space.

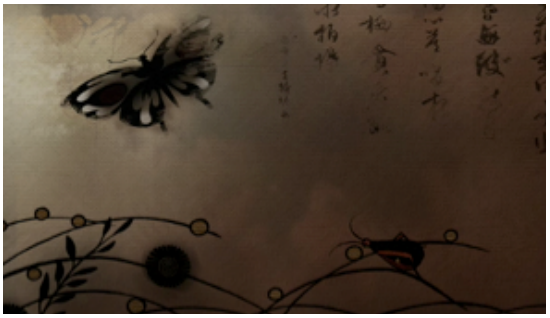
Method 2

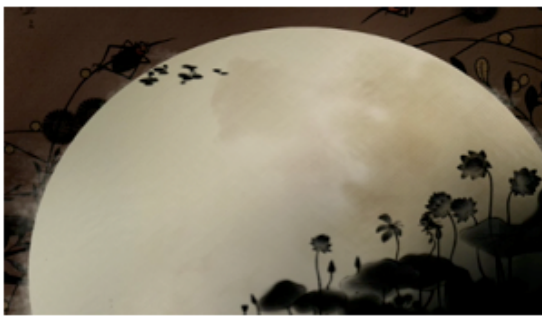
The painted image could be animated appearing to react to the movement of the piece of paper. The example below shows that as the paper is folded, the seawater image is animated, seeming to flow down.

Final Result

The final result of this project is a two-minute animation. In this animation, the narrative moves back and forth between the paper as an object and the illusive space.

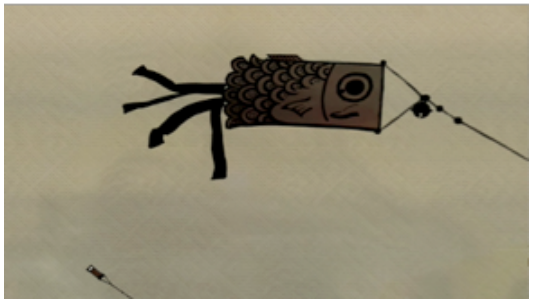
For example, a live butterfly in a 3D space gradually becomes a butterfly image on the paper. The moon-shaped image beside it gradually begins to appear 3-dimensional. The white area changes from the blank area of the painting to the 3D illusive space.





This animation consists of several parts linked together by the journey of a kite. All scenes are arranged along the edge of the paper and form a loop—the cloud in the first scene brings rain to the last scene.







For Project 10, I used a book to represent the criterion "3D objects in a logical state." The movable components of the book represent "objects in an imaginary state," since they can be used to create illusion or animation, like pop-up books do.

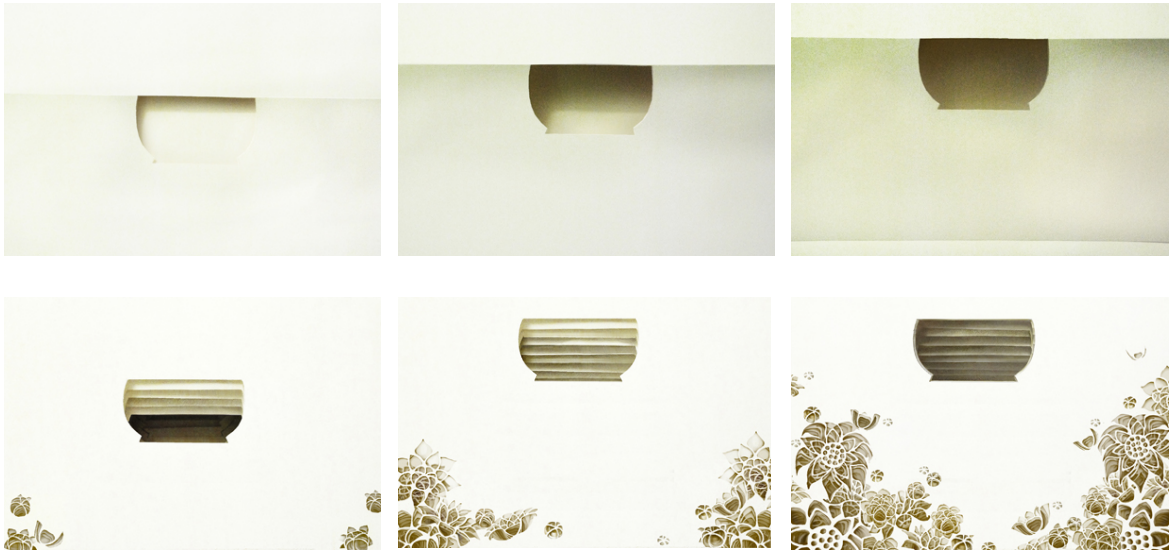
Based on the combination of two criteria, the objective of this project became to find methods of creating animation within the context of a book (book as an object.) The following are the methods I found.

Method 1: Movable components

I experimented with paper and paper-engineering to explore methods of developing animation. Then, I tested the results of the experiment to see whether they could be turned into the components of the book. The examples below are some positive results that I applied in my animation.

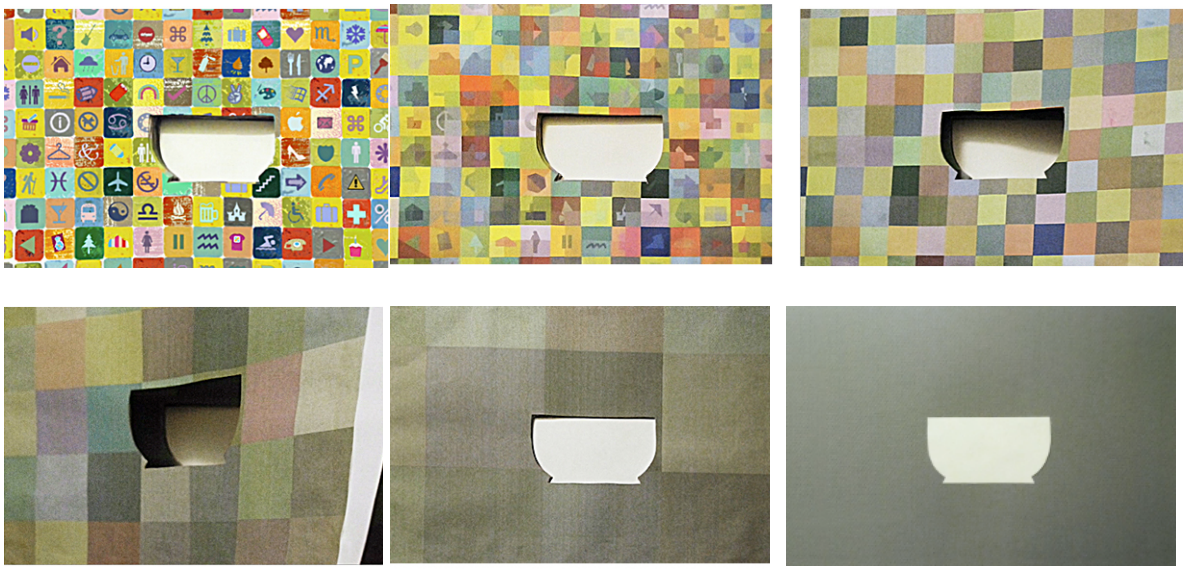
Method 2: Transformed pages

The pages of a book can be folded or cut out to create animation. The two examples below are the ones that I applied to my animation.



Method 3: Flipbook-technique

The flipbook technique is the most common animation method for books. I also employed it in my animation. As the images show below, the illusion is created as pages turn—the colorful background is gradually pixelated and finally becomes grey.



Final Result

Based on its objective, the final result of this animation would be about a book whose components and pages can be animated.

Prior to this project I wrote a poem entitled *Life and a bowl*. It is about the life of a bowl and the relationship between the bowl and real life. I decided to combine the poem with animation. In the final result of this project, the voice-over is a reading of the poem. The animation is about a book named *life and a bowl*, (see image 1); the components and pages of the book could be animated to visualize the poem.

To incorporate the poem, the visual form of the book needed to match to the narrative. For example:

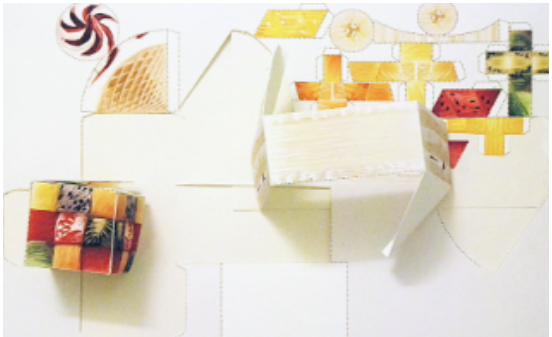
(Image 2) I used a collage style to express "poorness."

(Image 3) I adopted paper modeling to present "childhood."

(Image 4) I adopted paper cutting to visualize the lifting motion.

1

2



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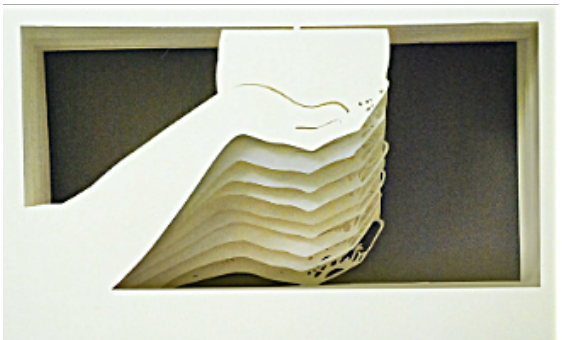

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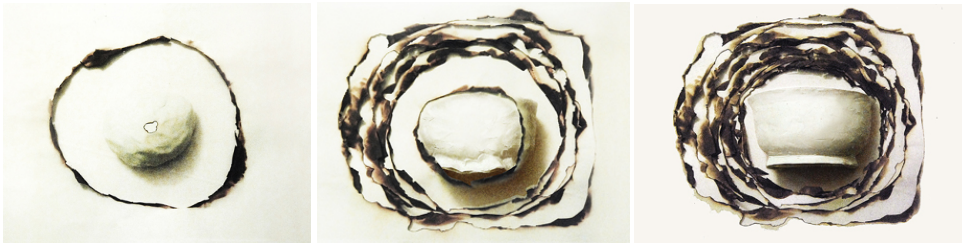
Project 10 is the hybrid of animation and book. The methods and ideas in this project can enrich the two media and the field between.

Animation

This project provides the following: (1) new methods for creating animation, (2) new visual styles and (3) new ideas for animation.

(Example 1) Each layer of sequential pictures is burned and reveals the next picture layer. This method creates the illusion that the clay gradually becomes a bowl. The voice-over here says "thanks fire for giving it the second life." (Example 3) The book shows a new method transitioning from one scene to the next.



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3

Book

This book-animation provides a new reading experience. It can also morph into an animation-book, that is, we can print out key frames of the animation, and turn them into a real book, a new kind of book.

Project 11 consists of a sequence of photos shot in Marfa, Texas, which illustrate the landscape view moving backward through a car window. The photos depict "representational space."

When I shot these photographs, I purposely positioned the sun at the left top corner of the image composition. In this way, the photo sequence creates a stop-motion, producing the illusion of the sun following us as we move. Because the sun's position in each photo is not exactly the same, in the animation, the sun appears to be skipping in the sky. Therefore the photos also convey "representational objects in an imaginary state."

Project 11 created from a photo sequence combines the "representational space" and the "representational object in an imaginary state."

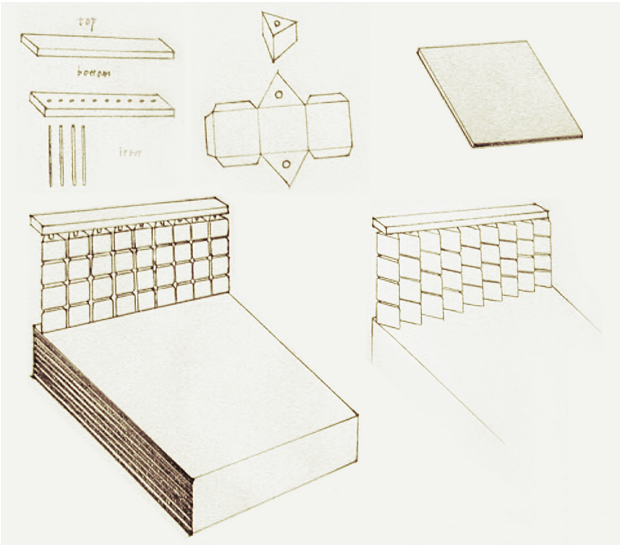
This animation mapped the sun's course as I wandered around Marfa. I found a scratched compact disc of Mexican music on the street that afternoon. The music was very cheerful and it matched the animation perfectly. It became the background music of the animation, *Mapping Sun in Marfa*.

For project 14, I chose cardboard furniture to represent a "real object," because it is easy to manipulate and, more importantly, easy to paint on with any number of tools. I chose the image painted on the cardboard to represent "objects in physical space in an imaginary state." I will explain how the painted image embodies the imagination in the following examples.

Example 1: Headboard for kids

The triangular wedges built into the headboard can rotate. Its three planes could be a painted image. When wedges rotate and combine with adjacent ones, the image on them can form new patterns or new stories. Such design supports a simple story/animation. It's similar to early inventions designed to animate images.

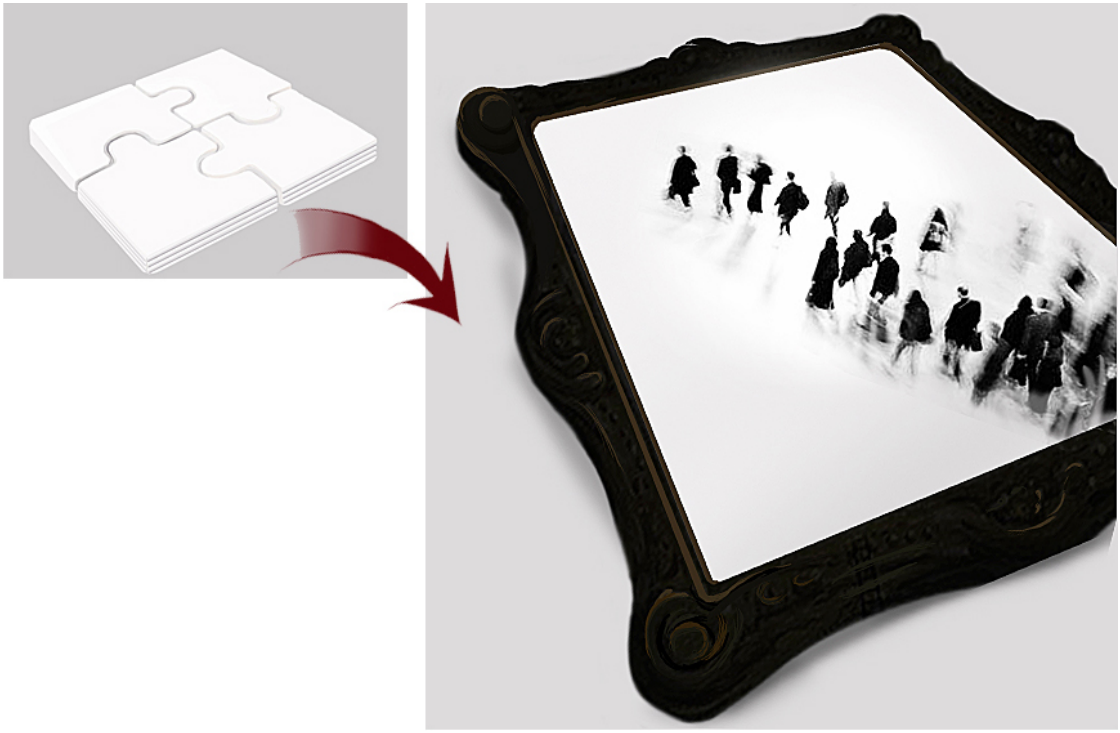
Children could also paint them, rotate and reconfigure them, allowing for endless imaginative rebuilding.



Example 2: Rug

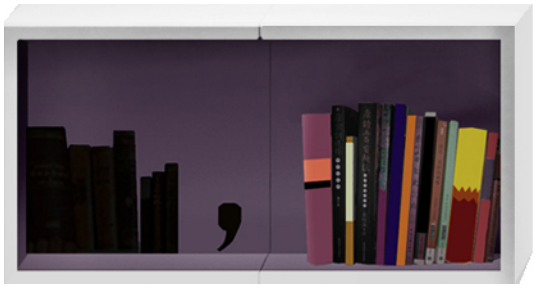
This huge rug resembles a picture frame, but invites people to walk and work on it. The context of the picture frame makes the daily activities look a little different, perhaps because it brings a tinge of the poetic. Shall we treat the area within the frame as an imaginary world, like the film on the screen?

Although this work is not animation, it is an installation that turns people's activities within it into a part of an imaginary world. It allows the imagination to exist in the real world.



Example 3: Bookshelf

The bookshelf and an image painted on it combine to convey a narrative. The image of a comma and books are painted on the inside of a bookshelf. The comma separates the painted books from real books. It also separates the real and the imaginary world.

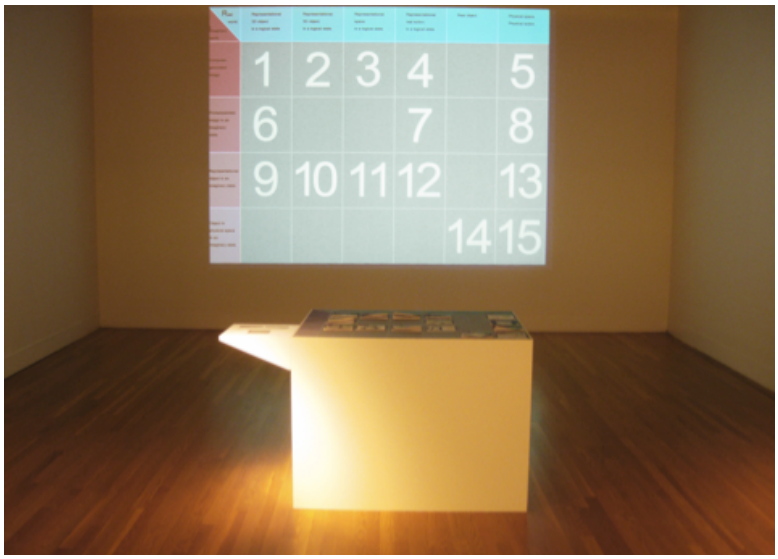


The two works above use simple methods, but embody my research topic very well. As two of my few non-animation projects, they were listed here as examples that can be realized and built in the physical space to combine the imagination/illusion and the real world.

Exhibition

As my research centers on the matrix, and each of my projects are derived from it, I used the matrix as my main exhibition piece.

The exhibition consisted of three parts: introduction, matrix with booklets placed on the table, and animation projected on the wall. The introduction stated my research topic; the matrix displayed my methodology; the booklets described the process of each project; and the animations were the final results of these projects. This exhibition design allowed the spectators to choose which aspects most interested them.



Conclusion

Over the past 70 years, animation has incorporated new elements—sound, color, camera movement from film, special effects from computer technology and stylized artistic expression from various arts (painting, sculpture, folk craft). Today, as its applications increase in range, animation uses more media, materials and techniques from the real world. This cross-fertilization enriches animation, and blurs the distinction between animation and the real world. My research is part of this trend and potentially useful as it provides methods for enriching the field.

My matrix could also serve as a prototype, or a useful tool to develop ideas for interdisciplinary media—providing criteria for combining two media sources.

All of my projects are the result of combining criteria from the two axes of the matrix. Inevitably some projects are the hybrid of two media or two materials. In the process of attempting to combine two medias, I sparked some new ideas for two media and the field between.

Developing the matrix also pushed me to explore new areas. Some combined criteria require me to realize animation in physical space (such as project 10, the hybrid of book and animation); some pushed me to work with specific materials and media. Different materials and media have different logic and languages, which benefit my animations as well.

In the future, I wish to work with more materials, media and technique to further this research, and to apply the results to better serve our daily life.

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